

REMARKS

Claims 1-8 and 10-22 currently appear in this application. The Office Action of March 17, 2008, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Interview Summary

Applicant's attorney wishes to thank Examiner Goodrow for the courtesies extended during the interview of June 24, 2008. During that interview, it was agreed that claim 1 would be allowable if it included a range of the saturation magnetization and dielectric breakdown. Claim 8 would be allowable if it included the oxygen concentrations recited in claim 9.

Claim Amendments

In claim 1, the description of  $0 \leq R(Ca) \leq 0.10$  includes the following embodiments:

- (i)  $R(Ca) = 0; a = 0$
- (ii)  $R(Ca)$  is not 0;  $a$  is not 0.

Namely, the formula  $Ca_aMg_bFe_cO_d$  (1) can be substantially represented by the formula  $(MgO)_b(Fe_2O_3)_{c/2}$ .

corresponding to embodiment (i)' or  $(CaO)_a(MgO)_b(Fe_2O_3)_{c/2}$ ,  
corresponding to embodiment (ii).

Since in embodiment (ii) the CaO components is essential, claim 1 has been amended to recite, "A Mg-based ferrite material consisting essentially of MgO and Fe<sub>2</sub>O<sub>3</sub> components [corresponding to embodiment (i)] or of CaO, MgO and Fe<sub>2</sub>O<sub>3</sub> components, [corresponding to embodiment (ii)]."

The specification teaches that the ferrite material as claimed herein consists essentially of MgO and Fe<sub>2</sub>O<sub>3</sub> components or of CaO, MgO and Fe<sub>2</sub>O<sub>3</sub> components. The formula  $Ca_aMg_bFe_cO_d$  (1) can be substantially represented by the formula  $(MgO)_b(Fe_2O_3)_{c/2}$  in formula (1),  $a=0$  and  $d= a + b + (3c/2)$ .

It should be noted that page 11, lines 4-20 of the specification as filed teaches that the ferrite material claimed herein may contain components other than CaO, MgO and Fe<sub>2</sub>O<sub>3</sub> components.

It is respectfully submitted that the claims as amended in formula (1) are appropriately specified, since the limitation  $0.10 \leq b/(b + c/2) \leq 0.85$  specifies the mole ratio between the Mao and Felon components. And the limitation  $0 \leq R(Ca) \leq 0.10$  appropriately specifies the ratio between the Ca components and the total of  $(CaO)_a(MgO)_b(Fe_2O_3)_{c/2}$ .

It is respectfully submitted that the claims correctly express the values for a, b, c and d in formula (1),

since the limitation, since the limitation  $0.10 \leq b/(b+c/2) \leq$  appropriately specifies the mole ratio between the magnesium oxide and the ferric oxide components, and the limitation  $0 \leq R(Ca) \leq 0.10$  appropriately specifies the ration between the calcium oxide component and the total of  $(CaO)_a(MgO)_b(Fe_2O_3)_{c/2}$ .

In accordance with the Examiner's helpful suggestions, limitations regarding saturation magnetization measured at 14 kOe using a vibrating sample magnetometer and the limitations regarding the mixing the raw materials have been added to the claims.

Submitted herewith is a table showing calculated results for values of a, b, c and d in formula (a). The mole ratios of a, b, c and d can be calculated by the amounts of the raw materials used in each example. New claim 21 is based upon the data in this table.

Rejections under 35 U.S.C. 112

Claims 1, 8 and 12 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant regards as the invention. In claim 1, the references to a, b and c are said to fail to point out the applicant's invention because  $a=b=c=100$  mol% and d is a whole number. Claim 1 is said to fail to teach the filed for the saturation magnetization. Claims 8 and 12 are said to teach mixing raw materials.

This rejection is respectfully traversed. As noted above, the claims have been amended to more clearly define the invention for which patent protection is sought.

**Art Rejections**

Claims 1-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) obvious over Mano et al., US 5,538,656.

This rejection is respectfully traversed. The presently claimed composition is a magnesium-based ferrite material consisting essentially of MgO and Fe<sub>2</sub>O<sub>3</sub>, or of CaO, MgO and Fe<sub>2</sub>O<sub>3</sub> components made by a specific heat-treatment process. If the heat-treatment step is not conducted as claimed herein, the ferrite will contain a significant amount of magnetite (Fe<sub>3</sub>O<sub>4</sub>) in the Fe<sub>2</sub>O<sub>3</sub>. The Fe<sub>3</sub>O<sub>4</sub> component decreases the dielectric breakdown voltage of a ferrite. The ferrites disclosed in Mano contain a significant amount of Fe<sub>3</sub>O<sub>4</sub>, and, accordingly, cannot attain a high dielectric breakdown voltage, in contrast to the presently claimed ferrite material. Mano is silent with respect to technical information regarding a dielectric breakdown voltage or any need to attain a higher dielectric breakdown voltage. For the foregoing reasons, it is respectfully submitted that the presently claimed ferrite is neither disclosed nor suggested in Mano.

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Reply to Office Action of March 17, 2008

In view of the above, it is respectfully submitted  
that the claims are now in condition for allowance, and  
favorable action thereon is earnestly solicited.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.  
Attorneys for Applicant

By:



Sheridan Neimark

Registration No. 20,520

SN:srd

Telephone No.: (202) 628-5197

Facsimile No.: (202) 737-3528

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	MgO			Fe2O3			CaO			a	b	c	d	b/(b+c/2)	R(Ca)
	molar ratio	Formula weight	molar ratio	Formula weight	wt%	Formula weight									
Example 1	70	40.30	30	159.69	0	56.08	0.00	0.70	0.60	1.6	0.70	0.70	0.00		
Example 2	60	40.30	40	159.69	0	56.08	0.00	0.60	0.80	1.8	0.60	0.60	0.00		
Example 3	50	40.30	50	159.69	0	56.08	0.00	0.50	1.00	2.0	0.50	0.50	0.00		
Example 4	40	40.30	60	159.69	0	56.08	0.00	0.40	1.20	2.2	0.40	0.40	0.00		
Example 5	35	40.30	65	159.69	0	56.08	0.00	0.35	1.30	2.3	0.35	0.35	0.00		
Example 6	30	40.30	70	159.69	0	56.08	0.00	0.30	1.40	2.4	0.30	0.30	0.00		
Example 7	50	40.30	50	159.69	2	56.08	0.04	0.50	1.00	2.0	0.50	0.50	0.02		
Example 8	50	40.30	50	159.69	4	56.08	0.07	0.50	1.00	2.1	0.50	0.50	0.04		
Example 9	50	40.30	50	159.69	8	56.08	0.16	0.50	1.00	2.2	0.50	0.50	0.08		
Example 10	35	40.30	65	159.69	2	56.08	0.04	0.35	1.30	2.3	0.35	0.35	0.02		
Example 11	35	40.30	65	159.69	4	56.08	0.09	0.35	1.30	2.4	0.35	0.35	0.04		
Example 12	35	40.30	65	159.69	8	56.08	0.18	0.35	1.30	2.5	0.35	0.35	0.08		
Example 13	20	40.30	80	159.69	2	56.08	0.05	0.20	1.60	2.6	0.20	0.20	0.02		
Example 14	20	40.30	80	159.69	4	56.08	0.10	0.20	1.60	2.7	0.20	0.20	0.04		
Example 15	20	40.30	80	159.69	8	56.08	0.21	0.20	1.60	2.8	0.20	0.20	0.08		
Example 16	10	40.30	90	159.69	1	56.08	0.03	0.10	1.80	2.8	0.10	0.10	0.01		
Example 17	35	40.30	65	159.69	4	56.08	0.09	0.35	1.30	2.4	0.35	0.35	0.04		
Example 18	35	40.30	65	159.69	4	56.08	0.09	0.35	1.30	2.4	0.35	0.35	0.04		
Example 19	35	40.30	65	159.69	4	56.08	0.09	0.35	1.30	2.4	0.35	0.35	0.04		